

# ABSTRACT

5 A process for producing synthetic quartz glass using a  
burner composed of a plurality of concentric nozzles  
involves the steps of feeding a silica-forming raw material  
gas and a fluorine compound gas to a reaction zone from a  
center nozzle, feeding oxygen gas from a second nozzle  
outside the center nozzle, and feeding oxygen gas and/or  
10 hydrogen gas from a third nozzle. The silica-forming raw  
material gas is hydrolyzed to form fine particles of silica,  
which particles are deposited on a rotatable substrate so as  
to form a porous silica matrix, which is then fused to give  
the quartz glass. The flow rate of the oxygen gas fed from  
15 the second nozzle and the flow rate of the raw material gas  
are controlled so as to provide a 1.1- to 3.5-fold  
stoichiometric excess of oxygen. The excess oxygen  
suppresses Si-Si bond formation in the quartz glass,  
enabling the production of synthetic quartz glass having a  
20 high transmittance in the vacuum ultraviolet region.